Total No. of printed pages = 6

END SEMESTER EXAMINATION – 2020

Semester : 4th

Subject Code : FPT-403

BASICS OF FOOD CHEMISTRY

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. *All* questions of PART–A are compulsory.
2. Answer any *five* questions from PART–B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

   (a) The process of converting unsaturated fats into saturated fats by addition of hydrogen is called _____.

   (b) _____ is more commonly known as milk sugar.

[Turn over

(c) In aqueous solution, the carboxyl group can lose a proton and amino group can accept a proton, giving rise to a dipolar ion known as _____.

(d) Tocopherol is the chemical name of vitamin _____.

(e) D-glucose is also known as _____.

(f) Maillard reactions generally only begin to occur above _____.

(g) _____ the primary pigment in plants.

(h) The number of glycosidic bond in disaccharides is/are _____.

(i) If $n = 5$, then the formula of carbohydrate is _____.

(j) An example of Omega 6 fatty acid is _____.

2. Write true or false : 1×10=10

(a) Oligosaccharides are called sugars.

(b) Maltose is a reducing sugar.

(c) Amylopectin is soluble in water.

(d) D-sugars are naturally occurring sugars and body can metabolize only D-sugars.

(e) Alpha helix is a left-handed coiled rod-like structure.

(f) Cis-trans isomerism occurs in compounds with double bonds.

(g) Sucrose is also said to be invert sugar.

(h) Saturated fatty acids have one or more C=C double bonds.

(i) Caramelization is a type of enzymatic browning reaction.

(j) Glucose is the sweetest of all natural sugar types.

3. Choose the correct answer : 1×5=5

(i) Which of the following is not an antioxidants ?

(a) Vitamin A

(b) Vitamin C

(c) Vitamin E

(d) Beta Carotene

(ii) What holds proteins together ?

(a) Hydrophobic bonds

(b) Peptide bonds

(c) Amino acid bonds

(d) Ester bonds

(iii) Which of the following is correct ?

(a) Sucrose is made up of galactose and glucoses.

(b) Lactose is made up of glucose and fructose.

(c) Lactose is made up of galactose and fructose.

(d) Sucrose is made up of glucose and fructose.

(iv) Amylose contains glucose units

(a) 100 – 200 (b) 200 – 300

(c) 300 – 400 (d) 500 – 600

(v) Lactose in milk is a

(a) Polysaccharide

(b) Trisaccharide

(c) Disaccharide

(d) Monosaccharide

PART – B

Marks – 45

4. (a) What is Simple sugar ? Give examples. 3

(b) What products are formed by hydrolysis of lactose ? Is maltose a reducing sugar ? 3

(c) Define essential amino acid giving suitable examples. 3

5. (a) What are D and L isomers ? Draw the structure of D-glyceraldehyde. 3

(b) Why are vitamin A and vitamin C essential to us ? Give their important sources. 4

(c) Explain how peptide bond are formed. 2

6. (a) Classify the following into monosaccharides and disaccharides :

Ribose, 2-deoxyribose, maltose, galactose, fructose and lactose. 3

(b) Explain the difference between monounsaturated and a polyunsaturated fat ? 4

(c) What are Enzymes ? Are all enzymes protein ? 2

7. (a) Define the following terms (any *five*) : 2×5=10

(a) Rancidity (b) Melanoidin

(c) MCFA (d) N-terminal

(e) Stereoisomer (f) Glycosidic bond

8. (a) What are intentional food additives ? Explain the role of food additives. 4

(b) What is the basic structural difference between starch and cellulose ? 3

(c) Draw the ring structure of glucose and fructose. 2

9. (a) Show the formation of the disaccharide maltose from 2 glucose molecules. 3

(b) Explain the relation between water activity and moisture content. 2

(c) What is non-enzymatic browning ? Why maillard reaction is important in foods ? 4

10. (a) What are simple lipids ? Give examples. 2

(b) What are carotenoids and what are their functions ? 4

(c) Explain the consequences of caramelization. 3